

## **REMARKS/ARGUMENTS**

These remarks are made in response to the Office Action of November 13, 2007 (Office Action). As this response is timely filed within the 3-month shortened statutory period, no fee is believed due. However, the Examiner is expressly authorized to charge any deficiencies to Deposit Account No. 50-0951.

In the Office Action, Claims 1-6, 8-11, 13-26, and 28-31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,122,664 to Boukobza, *et al.* (hereinafter Boukobza) in view of U.S. Patent 6,681,243 to Putzolu, *et al.* (hereinafter Putzolu). Claim 13 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Boukobza in view of Putzolu.

### **Amendments to the Claims**

Although Applicants respectfully disagree with the rejections in the Office Action, Applicants nonetheless have amended the claims in order to expedite prosecution of the present application by further emphasizing certain aspects of the claims. Applicants respectfully assert, however, that the claim amendments presented are not intended as, and should not be interpreted as, the surrender of any subject matter. Applicants are not conceding by these amendments that any previously submitted claims are unpatentable over the references of record. Applicants' present claim amendments are submitted only for purposes of facilitating expeditious prosecution of the present Application. Accordingly, Applicants respectfully reserve the right to pursue any previously submitted claims in one or more continuation and/or divisional patent applications.

In this response, Applicants have amended the independent claims to emphasize certain aspects of the claims. In particular, the independent claims have been amended to clarify certain aspects of the operation of the ghost agents, as discussed below, to contrast their operation with that of the asserted ghost agents in the cited references. No new subject matter has been introduced by these amendments.

*Aspects of the Claims*

Prior to discussing the cited references, it may be useful to discuss certain aspects of the claims. The claims, as amended, recite systems and methods for validating software in a grid environment using ghost agents. A method, as typified by Claim 1, can include identifying a host software object currently operating in a first grid of the grid environment. The method can also include associating a ghost agent in the first grid with the host object, the ghost agent being a ghost agent currently not associated with any other host object in the grid environment. That is, ghost agents are associated or attached to only one host object at a time. The ghost agent can be configured to replicate any actions of the host object, as well as record data related to the replicated actions.

The method further provides for comparing the recorded data to validation data and generating a validation output based on the comparison. The method also includes moving the host object from the first grid to a second grid in the grid environment and responsively moving the associated ghost agent from the first grid to the second grid. That is, the ghost agent follows the movements of the host object it is associated with in order to replicate the actions of the host object in each grid the host object moves to.

*The Claims Define Over the Cited References*

As previously noted, the independent claims were rejected as being unpatentable over the combination of Boukobza and Putzolu. Applicants respectfully disagree and submit that in view of all the teachings of cited references, the claims, as amended, define over these and any other references of record.

First, the cited references fail to disclose or suggest the step associating a ghost agent with a host object currently unassociated with a ghost agent. The Office Action asserts on Page 2 that Boukobza explicitly discloses "an autonomous agent that [is] associated with object types or to a particular domain...and discloses such object types include software objects." Applicants disagree and submit that in view of *all* the

teachings of Boukobza, this statement is a mischaracterization of the operation of the autonomous agents in Boukobza. Applicants respectfully submit that Boukobza explicitly discloses an autonomous agent that is associated with a specific node. Furthermore, as noted in the Office Action, the agent can be configured to monitor certain object *types* currently operating in the node. However, this is substantially different from the association recited in the claims, as amended.

A ghost agent, as recited in the claims, is associated with only one specific host object in the grid environment. In the claims, only a currently unassociated host object is associated with a ghost agent. Consequently, ghost agents, as recited in the claims, cannot be associated with more than one software object. In other words, the claimed ghost agent is configured to be associated with one and only one host object at a time. Boukobza, in contrast, discloses deploying an autonomous agent associated with a node to monitor any number of objects therein. Although the agent can be configured to specific types of software objects, as acknowledged in the Office Action, nowhere does Boukobza disclose or suggest that the agent is configured to monitor only a specific object. The agents in Boukobza are configured, as acknowledged in the Office Action, to monitor *object types*, not specific objects, as recited in the claims.

Second, the cited references fail to disclose the motion of host objects and ghost agents as recited in the claims. The Office Action asserts on Page 3 that Putzolu discloses moveable ghost agents. However, when agents of Boukobza are combined with the motion in Putzolu, the resulting combination fails to disclose the motion, as recited in the claims. In particular, Putzolu and Boukobza both fail to teach or suggest that a ghost agent follow an associated host object from grid to grid so as to replicate actions and record data as the host object moves through the grid environment. As noted in the Office Action, Boukobza fails to disclose any motion of ghost agents.

Putzolu only discloses agents that move independently of the host objects in a grid environment. The agents in Putzolu are configured to travel through the grid environment to determine the grids, or components therein, causing a disruption in the flow of other objects. Thus, the agents do not move in response to the motion of a specific object, but rather in response to the general motion of a plurality of objects. Furthermore, the agents do not follow this general motion, but rather move opposite to this general motion back to the source of the traffic disruption. Therefore, even if the agents in Boukobza could move according to Putzolu, such a motion would not be based on the motion of a specific host. Rather, the motion, at most, would only be based on the motion of a group of host objects. Furthermore, the resulting agent would not move with such object, but against such objects. Therefore, such agent cannot replicate actions of host objects as they move through the grid environment, as the agent is always moving away. In contrast, the claims, as amended, explicitly recite the limitation that the motion of the ghost agent is to follow the motion of the specific host object, in order to be able to replicate and record actions of the host object in the other grids.

Third, the cited references fail to disclose or suggest a ghost agent configured to replicate the actions of a host object. According to the Office Action, such a limitation is disclosed in Boukobza. Applicants respectfully disagree. In support of its rejection on Page 4, the Office Action asserts that the portion of Boukobza relating to "log files" discloses the replication of acts by the claimed ghost agents. However, this "log file" is not for the recording of replicated actions by the agents in Boukobza. Rather, this log file contains the results of **monitoring and testing** conducted by the agents, not the results of the agent replicating any action of any host in the grid. In fact, nowhere does Boukobza disclose or suggest that specific actions of a specific host object are replicated in any fashion. In contrast, the claims, as amended, explicitly recite the limitation that actions are **replicate – that is, copied**, by the ghost agents. That is, the ghost agents perform

***exactly*** the same action as the host object in order to record the response of the grid to the action, not just the result of the action.

Accordingly, Boukobza and Putzolu, separately or in combination with each other or any other reference of record, fail to disclose, suggest, or render obvious each and every element of the independent claims, as amended. Applicants therefore respectfully submit that the independent claims define over the references of record. Furthermore, as the remaining claims each depend from one of the independent claims while reciting additional references, Applicants submit that the dependent claims likewise define over the references of record.

### **CONCLUSION**

Applicants believe that this application is now in full condition for allowance, which action is respectfully requested. Applicants request that the Examiner call the undersigned if clarification is needed on any matter within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

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